2020 Target: 20% increase in eelgrass – A sample (not complete) target-based framework for the Puget Sound Action Agenda[1] DRAFT 1-12-12

The 2020 target for eelgrass is to increase the acres of eelgrass in Puget Sound by 20 percent from the 2000 to 2008 baseline period - an increase from about 53,100 acres to about 63,700.

TIMEFRAME FOR BENCHMARKS[2]

2011	NTAs 2012 – 2013	2014	2016	2018	2020
Over 11 years of sampling, Soundwide eelgrass has increased. However, long-term trends at individual sites show that twice as many sites are declining than are increasing, indicating that smaller eelgrass populations are decreasing or disappearing with alarming consistency. These results suggest a contraction of eelgrass into larger beds with a loss of remote populations that may be used for habitat connectivity and migration.[3]	**B6.1 Improve data and information to protect eelgrass in sensitive areas.** DNR carries out a variety of programs to support eelgrass protection and recovery, and will emphasize the following activities: • Estimate the total area of eelgrass in Puget Sound annually and provide feedback on the effectiveness of efforts to protect and restore this critical habitat. This information will track progress toward the Partnership's target to increase eelgrass area by 20% by 2020. Annual sound-wide estimates will be produced within one year of sampling in order to assure that information is delivered in a timely manner to guide management actions. • Synthesize and publish guidance based on the best available science describing key eelgrass stressors in Puget Sound. • Convene partners in state and local government, Tribes, the federal agencies and non-governmental and business groups to develop a broad-based strategy to achieve	**Protection** Employ stressors guidance (B.6.1) to reduce eelgrass acreage loss of eelgrass beds in existence in 2011 by 25%. DNR applies stewardship measures in Aquatic HCP in all new and renewing use authorizations to eliminate harm to eelgrass on state-owned aquatic land (about 50% of eelgrass is on SOAL). Shoreline Master Programs (SMPs) prevent 100% of new shoreline armoring (hazard exemption). Hydraulic Code includes best available nearshore science. 50% HPAs require avoidance of all impacts to eelgrass. DFW requires removal of bulkheads before replacement and if replacement is necessary (hazard exemption), requires soft techniques. Ecology begins the development of water	**Protection** Employ stressors guidance (B.6.1) to reduce eelgrass acreage loss of eelgrass beds in existence in 2011 by 35%. DNR applies stewardship measures in Aquatic HCP in all new and renewing use authorizations to eliminate harm to eelgrass on state-owned aquatic land (about 50% of eelgrass is on SOAL). SMPs prevent 100% of new shoreline armoring (hazard exemption). Hydraulic Code applies best available nearshore science to 100% permit applications. 70% HPAs require avoidance of all impacts to eelgrass. DFW requires removal of bulkheads before replacement and if replacement is necessary (hazard exemption), requires soft techniques. Ecology adopts final water quality	**Protection** Employ stressors guidance (B.6.1) to reduce eelgrass acreage loss of eelgrass beds in existence in 2011 by 65%. DNR applies stewardship measures in Aquatic HCP in all new and renewing use authorizations to eliminate harm to eelgrass on state-owned aquatic land (about 50% of eelgrass is on SOAL). SMPs prevent 100% of new shoreline armoring (hazard exemption). Hydraulic Code applies best available nearshore science to 100% permit applications. 90% HPAs require avoidance of all impacts to eelgrass. DFW requires removal of bulkheads before replacement and if replacement is necessary (hazard exemption), requires soft techniques. Ecology develops TMDL cleanup plans for	**Protection** Employ stressors guidance (B.6.1) to reduce eelgrass acreage loss of eelgrass beds in existence in 2011 by 100%. DNR applies stewardship measures in Aquatic HCP in all new and renewing use authorizations to eliminate harm to eelgrass on state-owned aquatic land (about 50% of eelgrass is on SOAL). SMPs prevent 100% of new shoreline armoring (hazard exemption). Hydraulic Code applies best available nearshore science to 100% permit applications. 100% HPAs require avoidance of all impacts to eelgrass. DFW requires removal of bulkheads before replacement and if replacement is necessary (hazard exemption), requires soft techniques. 100% eelgrass areas in Puget Sound

[1] This chart has not undergone any review, rigorous or otherwise, and is intended as an example of a strategic framework **only**. Much research and policy development needs to occur under NTAs B.6.1 and B.6.2 in 2012 and 2013 before a chart such as this can be accurately populated. That said, recent eelgrass stressor research prioritizes overwater structures, shoreline armoring, suspended sediment, nutrient-driven algal blooms, anthropogenic contaminations, dredging and filling, sea level rise, sea temperature rise, disease, construction, and freshwater input, so we know more than enough to begin to lay out a schedule of regulatory and other actions that need to occur to meet the 2020 target (see RM Thom, KE Buenau, C Jud, VI Cullinan, *Eelgrass (Zostera marina L.) Stressors in Puget Sound*, Pacific Northwest National Laboratory, June 2011, pages 7.6 and 8.1).

[2] "Benchmark" is used here from the statutory definition in RCW 90.71.010 (3): "'Benchmarks' means measurable interim milestones of achievements established to demonstrate progress toward a goal, objective, or outcome."

[3] Puget Sound Partnership, *Puget Sound Vital Signs, Eelgrass Indicator*, www.psp.wa.gov/vitalsigns/eelgrass.php

	the 2020 eelgrass recovery target. • Through the habitat conservation measures of the Aquatic Lands Habitat Conservation Plan, condition aquatic use authorizations to ensure new or retrofitted over-water structures do not impact important habitats such as eelgrass and kelp beds. • Research how other estuaries have recovered seagrasses and identify proprietary tools implemented in other successful eelgrass recovery efforts that can be deployed here to prevent further damage to or loss of eelgrass on state-owned aquatic lands **B6.2 Use a variety of mechanisms to advance priority eelgrass restoration projects.** B62 NTA 1: DNR will identify and recommend sites that are suitable for eelgrass restoration in Puget Sound Sites will be selected using habitat suitability analysis, hydrodynamic modeling, and their resilience to stressors. This will include identification of sites on state-owned aquatic lands with a focus on areas with long-term protections already in place. **Restoration** DNR & Ecology deploy Puget SoundCorps crews to plant [1,000]* acres of eelgrass.	quality standards that protect eelgrass from nitrogen, toxics, TSS, and other pollutants. DNR, Corps, Port and other dredgers avoid dredging and or filling on 50% or projects that would harm eelgrass. **Restoration** DNR & Ecology deploy Puget SoundCorps crews to plant [3,029]* acres of eelgrass.	standards that protect eelgrass from nitrogen, toxics, TSS, and other pollutants. DNR, Corps, Port and other dredgers avoid dredging and or filling on 50% or projects that would harm eelgrass. **Restoration** DNR & Ecology deploy Puget SoundCorps crews to plant [3,029]* acres of eelgrass. DNR monitors all eelgrass planted after 2013 and employs adaptive management tools to address any failures.	those areas of Puget Sound where water quality standards that protect eelgrass from nitrogen, toxics, TSS, and other pollutants are not being achieved. DNR, Corps, Port and other dredgers avoid dredging and or filling on 75% or projects that would harm eelgrass. **Restoration** DNR & Ecology deploy Puget SoundCorps crews to plant [3,544]* acres of eelgrass. DNR monitors all eelgrass planted after 2013 and employs adaptive management tools to address any failures.	meet water quality standards that protect eelgrass from nitrogen, toxics, TSS, and other pollutants. DNR, Corps, Port and other dredgers avoid dredging and or filling on 100% or projects that would harm eelgrass. **Restoration** Net increase of 10,600 acres. **note that, assuming protection efforts expand eelgrass, not all 10,600 acres will need to be planted.* DNR monitors all eelgrass restored after 2013 and employs adaptive management tools to address any failures.